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Claims 1 to 8

1. A process for the preparation of ammonia comprising the steps of

contacting an ammonia synthesis gas with an ammonia synthesis catalyst arranged as a reaction zone in one or more catalyst tubes;

cooling the reaction zone by a heat conducting relationship with a cooling agent; and

withdrawing an ammonia rich effluent stream from the reaction zone;

wherein the cooling agent is selected from salts, mixtures of salts and metals having a melting point below the temperature in the reaction zone.

2. The process of claim 1, wherein the ammonia synthesis gas is contacted with the ammonia synthesis gas arranged in two or more reaction zones with intermediate withdrawal of an ammonia rich effluent stream between the reaction zones.

3. The process of claim 1, wherein the ammonia rich effluent stream is separated in a stream of unconverted ammonia synthesis gas and an ammonia product stream, the unconverted ammonia synthesis gas is recycled to the reaction zone.

4. The process of claim 2 and 3, wherein the separation is obtained by cooling of the effluent stream and condensation of ammonia.

5. The process of claim 2 and 3, wherein the separation is obtained by adsorption of ammonia contained in the effluent stream.

6. The process of claim 1, wherein the cooling agent is circulated within cooling tubes, each surrounding concentrically one catalyst tube.

7. A converter for the preparation of ammonia comprising at least one catalyst tube adapted to receive ammonia synthesis gas and to hold a reaction zone of ammonia synthesis catalyst; and

at least one cooling tube concentrically surrounding the at least one catalyst tube and being adapted to hold the cooling agent selected from salts, mixtures of salts and metals having a melting point below the temperature in the reaction zone.

8. The converter of claim 7, wherein the wall of the cooling tube(s) has a lower mechanical strength than the wall of the catalyst tube(s).